

Ahmed Fakhreldin

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EDUCATION

University of Ain-Shams

Cairo, Egypt

Bachelor of Computer and Systems Engineering (GPA: 3.22/4.00, Very Good)

Sept 2018 – Jun 2023

- **Relevant Coursework:** Big Data, Parallel & Distributed Systems, Data Structures and Algorithms, Discrete Maths, Design Patterns, Database Systems, Software Engineering, Operating Systems, Computer Networks, Artificial Intelligence, Distributed Systems

PROJECTS

Smart Examination System | *Angular, NodeJS, MongoDB, Express, TypeScript*

- Developed a responsive, user-centric interface using Angular, crafting an intuitive UI that enhances the learning experience for users aged 8–80.
- Implemented a robust backend architecture with Node.js, Express, and MongoDB, building RESTful APIs, streamlining database schemas, and leveraging caching strategies for high-performance data retrieval.
- Integrated advanced machine learning solutions by developing an automated question generation system with models (T5 Transformer, Word2Vec, Random Forest) and incorporating third-party services for text-to-speech and speech recognition, enabling multi-modal assessments.
- Collaborated in an Agile, cross-functional team to architect the full-stack system, contributing to both frontend and backend development, and authored an IEEE-standard review paper on automated test generation, synthesizing methodologies from 5+ seminal studies.

XML Desktop Program | *C++*

- Engineered a robust XML editor featuring 5 core functionalities, including XML-to-JSON conversion, data compression, syntax validation, error correction, and file prettification.
- Devised and optimized algorithms for efficient file prettification.

CPU Scheduler Simulator | *Java*

- Engineered a desktop application simulating process scheduling using 4 main algorithms: FCFS, SJF, Priority-based, and Round-Robin.
- Optimized scheduling efficiency and validated performance through rigorous testing.

Othello AI Player | *Python, Min-max Algorithm, PyGame*

- Developed an intelligent Othello game player utilizing the Min-max algorithm with alpha-beta pruning.
- Generated an advanced predictive model using a game tree search algorithm to analyze hundreds of potential moves, enhancing the decision-making process for optimal play strategies.
- Designed a heuristic evaluation function to assess board positions and inform AI strategy.
- Created a user-friendly interface using PyGame to facilitate engaging human-AI game play.

TECHNICAL SKILLS

Languages: C#, JavaScript, Java, Python, TypeScript, C++, XML, HTML, CSS.

Frameworks & Tools: ASP.NET Core, EF Core, Angular, Git, NodeJS, Express, Apache Spark, Visual Studio Code.

Databases: SQL, DBMS, MongoDB.

MILITARY SERVICE

Egyptian Armed Forces

Cairo, Egypt

Completed Mandatory Military Service with Honors

Oct 2023 – Dec 2024

- Excelled in high-pressure environments, coordinating operations of 60+ personnel, executing complex tasks with precision, efficiency, and strategic decision-making under strict operational constraints.

CERTIFICATIONS

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|--------------------------------------------|------------------|---------------------------------------------|------------------|
| • Foundation of Generative AI | <i>May 2024</i> | • Algorithmic Toolbox (UC San Diego) | <i>Sept 2021</i> |
| • Professional Frontend Development | <i>Dec 2022</i> | • AI For Everyone | <i>Jul 2021</i> |
| • MEAN Stack (ITI) | <i>Sept 2022</i> | • Python for Everybody | <i>Sept 2020</i> |

LANGUAGE PROFICIENCY

- **Arabic:** Native (C2)
- **English:** Advanced (C1)
- **German:** Beginner (A1)